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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,404	12/06/2001	Koji Nii	027260-505	5384

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EXAMINER

TRAN, TAN N

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/003,404

Applicant(s)

NII ET AL.

Examiner

TAN N TRAN

Art Unit

2826

aw

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment filed on 02/12/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 13-15 is/are rejected.
- 7) ☒ Claim(s) 10-12, 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities:

In claim 1, line 10, "contract hole" should be changed to - contact hole --.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8,13,14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi et al (6,299,314) (of record) in view of Applicant's prior art (APA) figure 31.

With regard to claims 1,4, Igarashi et al. disclose a gate electrode 3 formed on a substrate 1 through a gate insulating film 2 lying therebetween; first and second diffused layers (7A,7B) formed opposite to each other across the portion of the substrate 1 existing under the gate electrode 3 and having a first conduction type, each having a second conduction type different from the first conduction type of the portion; a contact CL14 formed within a contact hole CH14 on the substrate 1 wherein the contact hole CH14 having a width spans the gate electrode 3 and the first diffused layer 7A; and a third portion 7C that connects the first portion 7A to the second portion 7B. (Note see attachment # 1 of Fig. 22 of Igarashi et al.).

Igarachi et al. does not disclose a wiring layer formed above the gate electrode, so that the contact formed within a contact hole and electrically connecting the wiring layer to the first diffused layer and the gate electrode.

However, APA discloses a wiring layer formed above the gate electrode 30, so that the contact, which formed within a contact hole 60 between the wiring layer and the substrate 10, electrically connects the wiring layer to the first diffused layer 20 and the gate electrode 30. (Note Fig. 31 of APA).

Therefore, it would have been obvious to one of ordinary skill in the art to form the Igarachi et al.'s device having a wiring layer formed above the gate electrode, so that the contact formed within a contact hole and electrically connecting the wiring layer to the first diffused layer and the gate electrode such as taught by APA in order to connect the semiconductor device to other element or to the power supply.

With regard to claims 2,5, Igarashi et al. discloses the contact CL14 is connected also to the first portion of the diffused layer 7A and the second portion of the diffused layer 7B. (Note attachment #1 of Fig. 22 of Igarashi et al.).

With regard to claims 3,6, Igarashi et al. discloses a third diffused layer 7C formed on the substrate 1; and an isolation area ST formed between the first and the third diffused layers (7A,7C), which separates the first and the third diffused layers each other (7A,7C); wherein the contact CL14 is connected further to the third diffused layer 7C. (Note attachment # 1 of Fig. 20 of Igarashi et al.).

With regard to claims 7, 8,13,14, Igarashi et al. does not disclose the gate 3 is a memory node of the SRAM cell or the memory node of a bistable trigger circuit. However, it would have

been obvious to one of ordinary skill in the art to form the gate 3 of Igarashi et al. functions as a memory node, because it is conventional in the art to use one of the gate electrodes that functions as a memory node. Note Fig. 1 of Sunami (2001/0002054) is cited to support for the well-known position. Although Igarashi et al. and Applicant's prior art do not teach exact the type of the device as that claimed by Applicant, the type differences are considered obvious design choices and are not patentable unless unobvious or expected results are obtained from these changes. It appears that these changes produce no functional differences and therefore would have been obvious. Note in re Leshin, 125 USPQ 416.

Claims 9,15, are rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi et al. (6,299,314) (of record) and further in view of Yaegashi et al. (6,472,701) (of record).

With regard to claims 9,15, Igarashi et al. disclose another gate electrode 3 formed on the substrate 1 through another gate insulating film 2, and a transistor for composing a semiconductor integrated circuit therein. (Note see attachment # 1 of Fig. 22 of Igarashi et al.).

Igarashi et al. does not disclose the film thickness of the gate insulating film is thinner than the one of the another insulating film.

However, Yaegashi et al. discloses the film thickness of the gate insulating film 105 is thinner than the one of the another insulating film 108. (Note fig. 1 of Yaegashi et al.).

Therefore, it would have been obvious to one of ordinary skill in the art to form the Igarashi et al.'s device having the film thickness of the gate insulating film is thinner than the one of the another insulating film such as taught by Yaegashi et al. in order to elevate the speed of a peripheral transistor outside the memory.

Allowable Subject Matter

3. Claims 10-12, 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 10-12, 16 are allowable over the prior art of record, because none of these references disclose or can be combined to yield the claimed invention such as the relative dielectric constant of the gate insulating film is higher than the one of the another gate insulating film as recited in claims 10,16, the impurity concentrations of the first diffused layer and the second diffused layer are higher than the ones of the source and the drain areas as recited in claim 11, the impurity concentrations of the diffused layer are higher than the impurity concentration of the source area and the drain area as recited in claim 12.

Response to Amendment

4. Applicant's arguments with respect to claims 1-9,13-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the

mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

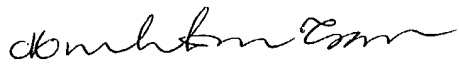
6. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Tan Tran whose telephone number is (571) 272-1923. The examiner can normally be reached on M-F 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for after final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

TT

April 2004


Minhloan Tran
Primary Examiner
Art Unit 2826